

Appl. No. 10/070,918

Amendment dated Nov. 3, 2005

Reply to Office Action of June 3, 2005

Docket No. 4006-007-30

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the instant application:

Listing of Claims:

1-18. (Cancelled)

19. (Currently Amended) The plant Process according to Claim 25 [[17]], ~~characterized in that~~ wherein said separating comprises sedimentation of the deconsolidated fragments, separated beforehand from the molten base, in a settling and neutralizing liquid, and, after removal of the settling and neutralizing liquid, recovery of the deconsolidated fragments.

20. (Currently Amended) The plant Process according to Claim 25 [[17]], ~~characterized in that it comprises a~~ further comprising a device for recycling of the molten pure base.

21. (Currently Amended) The plant Process according to Claim 25 [[17]], ~~characterized in that~~ wherein the molten NaOH treatment temperature is at most 400°C.

22. (Currently Amended) The plant Process according to Claim 25 [[17]], ~~characterized in that~~ wherein the deconsolidated solid fragments comprise metal fragments and fragments made of synthetic material and ~~in that~~ wherein the process furthermore includes sorting between the metallic and synthetic deconsolidated fragments before they are recycled or reutilized.

Appln. No. 10/070,918

Amendment dated Nov. 3, 2005

Reply to Office Action of June 3, 2005

Docket No. 4006-007-30

23. (Currently Amended) The plant Process according to Claim 25 [[17]], ~~characterized in that wherein~~ the deconsolidation takes place in a closed reactor, the waste to be treated being completely immersed.
24. (Currently Amended) The plant Process according to Claim 25 [[17]] ~~characterized in that wherein~~ the neutralizing uses at least one dilute acid.
25. (Currently Amended) A [[P]]plant for implementing [[the]] a process for treating vulcanized-rubber waste ~~according to Claim 17, wherein the process for treating vulcanized-rubber waste includes the steps of:~~
- coarse cutting of said waste into fragments,
 - attacking said fragments using a molten pure base under temperature conditions causing, in the presence of molten pure cast NaOH as the molten pure base, deconsolidation of the vulcanized rubber waste into deconsolidated solid fragments of polymeric composition;
 - separating said molten base from said deconsolidated solid fragments;
 - neutralizing said deconsolidated solid fragments; and
 - recycling or reutilizing the neutralized, deconsolidated solid fragments
- ~~characterized in that it wherein the plant~~ forms a completely closed system, with no atmospheric pollution, ~~which comprises the plant comprising:~~
- a device for melting said molten pure base;
 - a reactor connected to said melting device for melting, into which said vulcanized-rubber waste, which has been coarsely cut into pieces, and said molten pure base are introduced, and in which reactor temperature conditions are applied causing deconsolidation of the vulcanized-rubber waste into solid fragments of polymeric composition~~[[.]]~~;
 - a separating device connected to an outlet of said reactor and allowing the molten base to be separated from the deconsolidated solid fragments;
 - a neutralizing device fed with neutralizing agent from a source of neutralizing agent, in which device the deconsolidated solid fragments are neutralized; and

Appln. No. 10/070,918

Amendment dated Nov. 3, 2005

Reply to Office Action of June 3, 2005

Docket No. 4006-007-30

- a device connected to the neutralizing device for sorting the neutralized, deconsolidated solid fragments.

26. (Currently Amended) The [[P]]plant according to Claim 25, characterized in that wherein the reactor has closeable inlet and outlet openings, stirring equipment, and in that wherein said separating device comprises a filter ~~if necessary unlogged by a compressed air device~~ capable of retaining ~~inside the reactor~~ particles greater than 1 mm inside the reactor.

27. (Currently Amended) The [[P]]plant according to Claim 25, characterized in that wherein the neutralizing device comprises: a tank provided with an inlet communicating with an outlet of the reactor ~~[[.]]~~; and with an outlet ~~[[.]]~~; the inlet and outlet being closeable ~~[[.]]~~; stirring equipment; and a filter ~~if necessary unlogged by a compressed air device~~ in an output line.

28. (Currently Amended) The [[P]]plant according to Claim 25, characterized in that wherein the neutralizing device comprises a tank for injection of neutralized liquid and for recovery.

29. (Currently Amended) The [[P]]plant according to Claim 25, characterized in that wherein the neutralizing device comprises another tank which contains acid waste and is connected to a mixing unit.

30. (Currently Amended) The [[P]]plant according to Claim 25, characterized in that it comprises further comprising devices for cleaning precipitates and small particles in the NaOH.

Appln. No. 10/070,918

Amendment dated Nov. 3, 2005

Reply to Office Action of June 3, 2005

Docket No. 4006-007-30

31. (Currently Amended) The ~~[[P]]~~ plant according to Claim 25, ~~characterized in that wherein~~ the device for sorting comprises a device for transporting the deconsolidated materials with magnetic separation of metallic materials.
32. (Currently Amended) The plant ~~Process~~ according to Claim 25 ~~[[17]]~~, wherein the vulcanized rubber waste consists of one or more of tyres, boots, inflatable boats and reinforced rubber articles.
33. (Currently Amended) The plant ~~Process~~ according to Claim 21, wherein the molten NaOH treatment temperature is at most 350°C.
34. (Currently Amended) The plant ~~Process~~ according to Claim 24, wherein the at least one dilute acid is phosphoric acid.
35. (New) A process for treating vulcanized rubber waste, comprising the steps of:
coarse cutting of the vulcanized rubber waste into fragments,
attacking the fragments using a molten pure base under temperature conditions causing, in the presence of molten pure cast NaOH as the molten pure base, deconsolidation of the vulcanized rubber waste into deconsolidated solid fragments of polymeric composition;
separating the molten base from the deconsolidated solid fragments;
neutralizing the deconsolidated solid fragments;
recycling or reutilizing the neutralized, deconsolidated solid fragments; and
wherein the neutralizing uses phosphoric acid.
36. (New) The process according to Claim 35, wherein said separating comprises sedimentation of the deconsolidated fragments, separated beforehand from the molten base, in a settling and neutralizing liquid, and, after removal of the settling and neutralizing liquid, recovery of the deconsolidated fragments.

Appln. No. 10/070,918

Amendment dated Nov. 3, 2005

Reply to Office Action of June 3, 2005

Docket No. 4006-007-30

37. (New) The process according to Claim 35, further comprising the step of recycling the molten pure base.
38. (New) The process according to Claim 35, wherein the molten NaOH treatment temperature is at most 400°C.
39. (New) The process according to Claim 35, wherein the deconsolidated solid fragments comprise metal fragments and fragments made of synthetic material and wherein the process furthermore includes sorting between the metallic and synthetic deconsolidated fragments before they are recycled or reutilized.
40. (New) The process according to Claim 35, wherein the deconsolidation takes place in a closed reactor, the waste to be treated being completely immersed.
41. (New) The process according to Claim 35, wherein the vulcanized rubber waste consists of one or more of tyres, boots, inflatable boats and reinforced rubber articles.
42. (New) The process according to Claim 35, wherein the molten NaOH treatment temperature is at most 350°C.